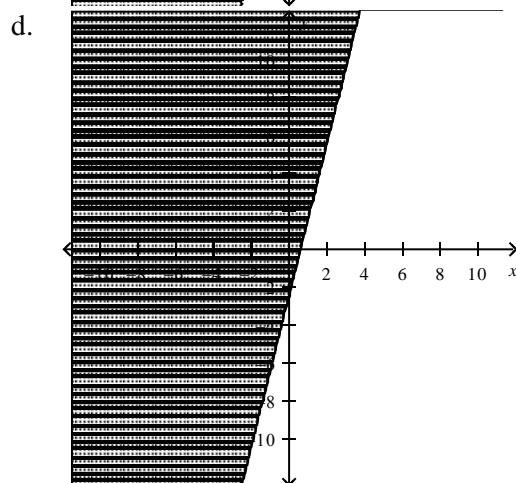
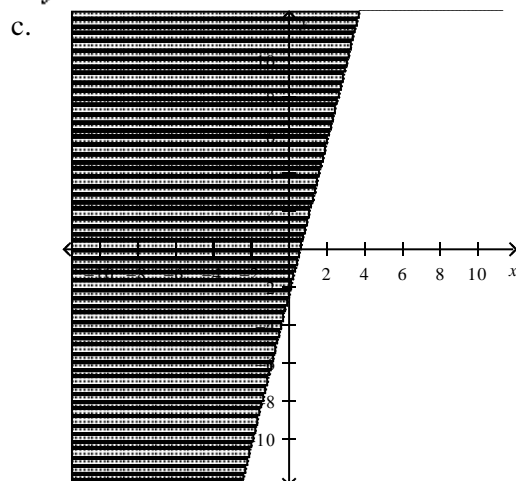
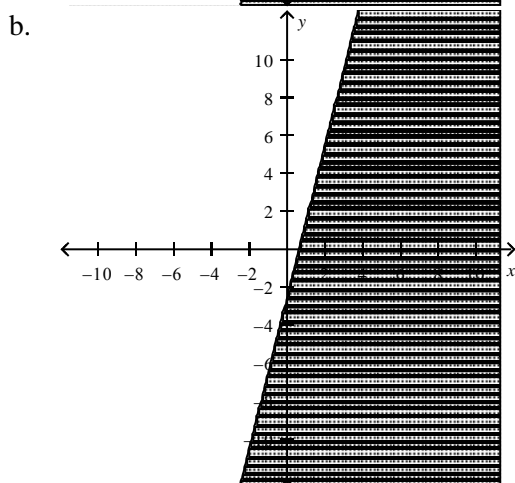
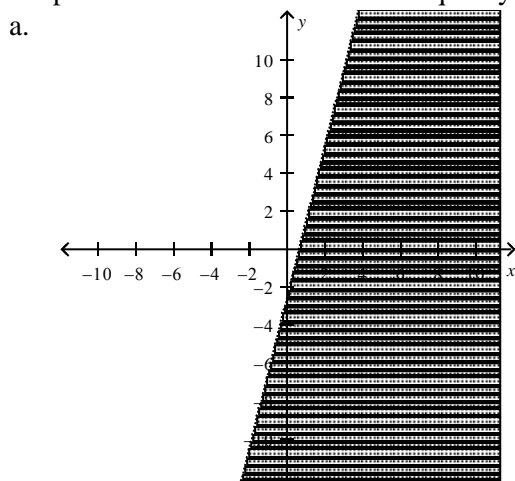
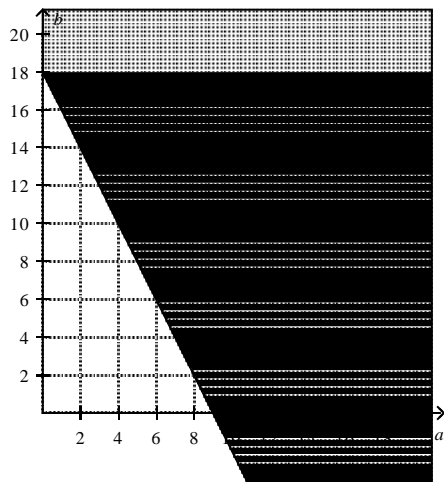


8. Classify $\begin{cases} x - 8y = 6 \\ 2x - 16y = 12 \end{cases}$. Give the number of solutions.
- This system is inconsistent. It has no solutions.
 - This system is consistent. It has infinitely many solutions.
 - This system is consistent. It has one solution.
 - This system is inconsistent. It has infinitely many solutions.
9. Elena and her husband Marc both drive to work. Elena's car has a current mileage (total distance driven) of 9,000 and she drives 18,000 miles more each year. Marc's car has a current mileage of 60,000 and he drives 7,000 miles more each year. Will the mileages for the two cars ever be equal? Explain.
- No; The equations have different slopes, so the lines do not intersect.
 - No; The equations have equal slopes but different y-intercepts, so the lines do not intersect.
 - Yes; The equations have different y-intercepts, so the lines intersect.
 - Yes; The equations have different slopes, so the lines intersect.
10. Tell whether $(8, 5)$ is a solution of $y > x + 7$.
- No, $(8, 5)$ is not a solution of $y > x + 7$.
 - Yes, $(8, 5)$ is a solution of $y > x + 7$.
11. Graph the solutions of the linear inequality $-8x + 2y > -6$.

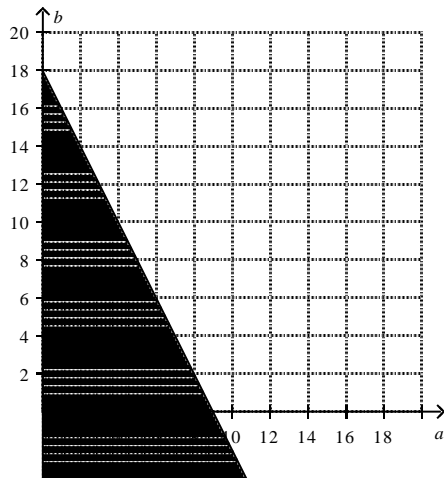


12. Tony has \$18 to buy apples and bananas for a fruit salad. Apples cost \$2 per pound and bananas cost \$1 per pound. Write and graph an inequality to describe the situation. Then give two possible combinations of pounds of apples and bananas that Tony can buy.

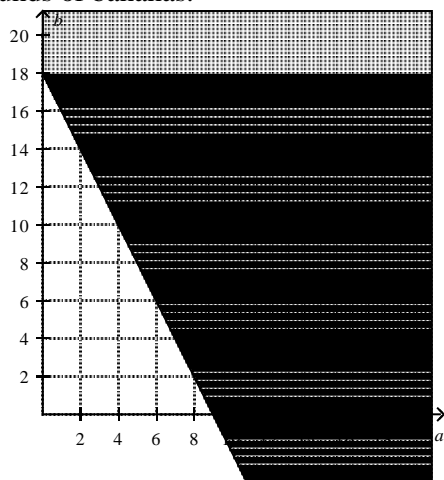
- a. $2a + b \geq 18$; 2 pounds of apples and 18 pounds of bananas or 4 pounds of apples and 16 pounds of bananas.



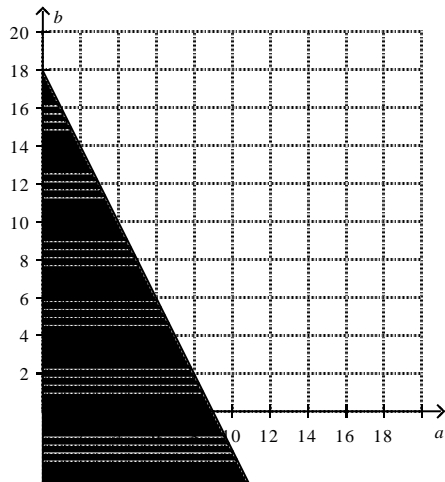
- b. $2a + b \leq 18$; 2 pounds of apples and 12 pounds of bananas or 4 pounds of apples and 2 pounds of bananas.



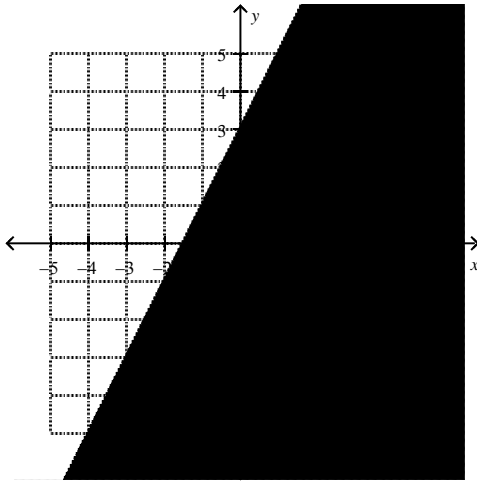
- c. $2a + b \leq 18$; 2 pounds of apples and 18 pounds of bananas or 4 pounds of apples and 16 pounds of bananas.



- d. $2a + b \geq 18$; 2 pounds of apples and 12 pounds of bananas or 4 pounds of apples and 2 pounds of bananas.



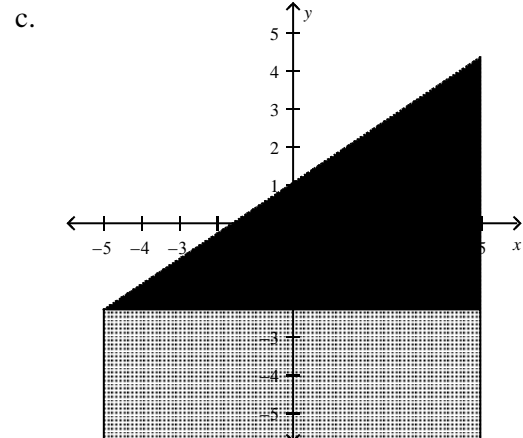
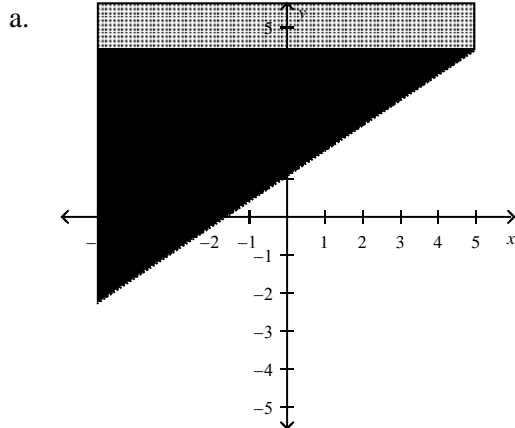
____ 13. Write an inequality to represent the graph.

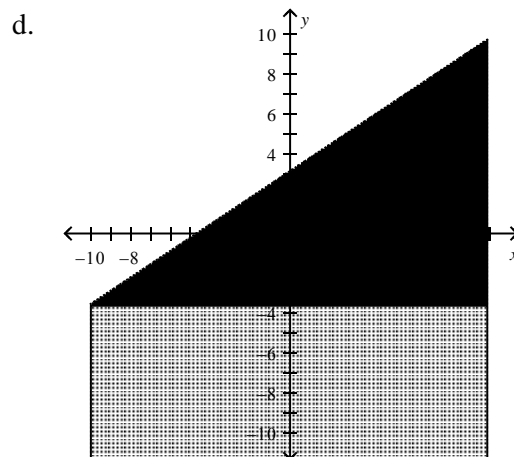
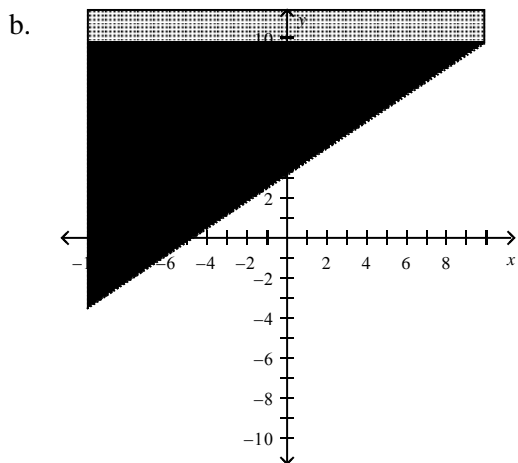


- a. $y < 2x + 3$
- b. $y \leq 2x + 3$

- c. $y > 2x + 3$
- d. $y < 3x + 2$

____ 14. Graph the inequality $0 > 9 + 6x - 9y$.





- _____ 15. Tell whether $(2, 7)$ is a solution of $\begin{cases} y \geq 4x \\ y < x + 2 \end{cases}$.
- No, $(2, 7)$ is not a solution of the system.
 - Yes, $(2, 7)$ is a solution of the system.

Algebra Chpt 6 Study Guide Solving Systems- Answer Section

MULTIPLE CHOICE

1. ANS: B

Substitute 5 for x and -3 for y in both equations. Since these values make both equations true, $(5, -3)$ is a solution of the system.

	Feedback
A	Use substitution to check that the ordered pair satisfies both equations.
B	Correct!

PTS: 1

DIF: Basic

REF: Page 383

OBJ: 6-1.1 Identifying Solutions of a System

NAT: 12.5.4.g

TOP: 6-1 Solving Systems by Graphing

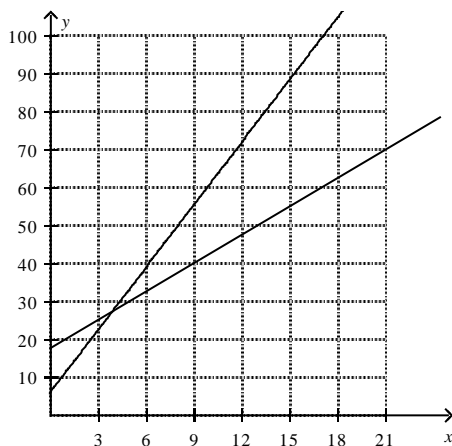
KEY: ordered pair | system of equations | solution

2. ANS: C

Write a system of equations.

	Total cost	is	cost	per game	plus	annual fee
Fun Guys	y	=	5.5	$\bullet g$	+	5
Game Bank	y	=	2.5	$\bullet g$	+	17

Graph the two equations.



The lines appear to intersect at $(4, 27)$. So the cost will be the same after 4 games, and that cost will be \$27.

	Feedback
A	Write and solve a system of equations. Each equation should represent the total cost at a store.
B	Check that you used inverse operations correctly when solving.
C	Correct!
D	Write and solve a system of equations. Each equation should represent the total cost at a store.

PTS: 1 DIF: Average REF: Page 385 OBJ: 6-1.3 Problem-Solving Application
 NAT: 12.5.4.d TOP: 6-1 Solving Systems by Graphing
 KEY: systems of linear equations | solving systems of linear equations | two unknowns

3. ANS: B

Continue the pattern. Subtract 15 from the number of CDs and add 45 to the number of movie tickets. In month 11, both the number of CDs and the number of movie tickets will be 550.

	Feedback
A	Subtract 15 from the number of CDs and add 45 to the number of movie tickets.
B	Correct!
C	Continue the pattern until you see the number of CDs and the number of movie tickets are the same.
D	Continue the pattern.

PTS: 1 DIF: Advanced NAT: 12.5.4.g TOP: 6-1 Solving Systems by Graphing

4. ANS: D

Let t represent the total amount paid and let d represent the number of days.

Nguyen's Kennel: $t = 15d + 20$

Pup Palace: $t = 12d + 35$

Substitute $15d + 20$ for t in the second equation and solve for w .

$$15d + 20 = 12d + 35$$

$$3d = 15$$

$$d = 5$$

The costs for the two kennels are equal at 5 days. After that, the Pup Palace Kennel is cheaper.

	Feedback
A	For a one day stay, the Pup Palace charges \$47 while Nguyen's Kennel charges \$35.
B	For a 10-day stay, Nguyen's Kennel charges \$170 while the Pup Palace charges \$155.
C	The Pup Palace becomes cheaper earlier than that. Set up cost equations for the two kennels in terms of the number of days, and then set the equations equal and solve.
D	Correct!

PTS: 1 DIF: Average REF: Page 393 OBJ: 6-2.3 Application

NAT: 12.5.4.d TOP: 6-2 Solving Systems by Substitution

5. ANS: A

Let z be the number of zebra fish and let n be the number of neon tetras that Marsha bought. Then solve the following system of equations.

$$2.10z + 1.85n = 25.80$$

Marsha spent \$25.80.

$$z + n = 13$$

Marsha bought 13 fish.

$$2.10z + 1.85n = 25.80$$

$$\underline{-2.10z - 2.10n = -27.30}$$

Multiply the second equation by -2.10

$$-0.25n = -1.50$$

Add the two equations to eliminate the z term.

$$n = 6$$

Solve for n .

To solve for z , substitute 6 for n in the first equation.

$$2.10z + 1.85(6) = 25.80$$

$$2.10z = 14.7$$

$$z = 7$$

Simplify.

Solve for z.

	Feedback
A	Correct!
B	Write an equation expressing the total cost and a second equation expressing the total number of fish. Solve for z and n using elimination.
C	You switched the prices of zebra fish and neon tetras.
D	Write an equation expressing the total cost and a second equation expressing the total number of fish. Solve for z and n using elimination.

PTS: 1

DIF: Average

REF: Page 400

OBJ: 6-3.4 Application

NAT: 12.5.4.g

TOP: 6-3 Solving Systems by Elimination

6. ANS: B

Method 1 Compare slopes and y-intercepts.

$$y = 2x - 1 \rightarrow y = 2x - 1$$

Write both equations in slope-intercept form. The lines

$$2x - y - 1 = 0 \rightarrow y = 2x - 1$$

have the same slope and the same y-intercept.

There are infinitely many solutions. The graph of this system of equations would be the same line.

Method 2 Solve the system algebraically. Use the elimination method.

$$y = 2x - 1$$

Write equations to line up like terms.

$$\rightarrow -2x + y = -1$$

$$2x - y - 1 = 0$$

Add the equations.

$$\rightarrow 2x - y = 1$$

$$0 = 0$$

The equation is an identity.

There are infinitely many solutions.

	Feedback
A	Compare the slopes and y-intercepts.
B	Correct!
C	The graph of the system will be the same line.
D	The graph of the system will be the same line.

PTS: 1

DIF: Average

REF: Page 407

OBJ: 6-4.2 Systems with Infinitely Many Solutions

NAT: 12.5.4.g

TOP: 6-4 Solving Special Systems

7. ANS: A

Method 1 Compare slopes and y-intercepts.

$$y = x + 7 \rightarrow y = x + 7$$

Write both equations in slope-intercept form. The lines

$$x - y + 7 = 0 \rightarrow y = x + 7$$

have the same slope and the same y-intercept.

There are infinitely many solutions. The graph of this system of equations would be the same line.

Method 2 Solve the system algebraically. Use the elimination method.

$$y = x + 7$$

Write equations to line up like terms.

$$\rightarrow -x + y = 7$$

$$x - y + 7 = 0$$

$$\rightarrow x - y = -7$$

$$0 = 0$$

Add the equations.

The equation is an identity.

There are infinitely many solutions.

	Feedback
A	Correct!
B	The graph of the system will be the same line.
C	The graph of the system will be the same line.
D	Compare the slopes and y-intercepts.

PTS: 1 DIF: Average REF: Page 407

OBJ: 6-4.2 Systems with Infinitely Many Solutions

NAT: 12.5.4.g

TOP: 6-4 Solving Special Systems

8. ANS: B

Write both equations in slope-intercept form.

$$y = \frac{1}{8}x - \frac{3}{4}$$

$$y = \frac{1}{8}x - \frac{3}{4}$$

These are the same line because they have the same slope and the same y-intercept.

	Feedback
A	First, write both equations in slope-intercept form. Then, compare the slopes and y-intercepts.
B	Correct!
C	First, write both equations in slope-intercept form. Then, compare the slopes and y-intercepts.
D	First, write both equations in slope-intercept form. Then, compare the slopes and y-intercepts.

PTS: 1 DIF: Basic REF: Page 408

OBJ: 6-4.3 Classifying Systems of Linear Equations

NAT: 12.5.4.g

TOP: 6-4 Solving Special Systems

KEY: classifying | systems | consistent | inconsistent

9. ANS: D

Write a system of equations.

	Total mileage	is	miles	per year	plus	current mileage
Elena	y	=	18,000	• ??	+	9,000
Marc	y	=	7,000	• ??	+	60,000

If the slopes of the lines are different, then the lines intersect and the mileages will be equal for some value of n .

The slope of the line for Elena's mileage is 18,000 and the slope of the line for Marc's mileage is 7,000. Therefore, the lines intersect, and the mileages will be equal.

	Feedback
--	----------

A	Write a linear equation to model the mileage of each car. If the slopes of the lines are different, the lines intersect.
B	Write a linear equation to model the mileage of each car. The distances driven each year are the slopes in the equations.
C	Write a linear equation to model the mileage of each car. If the slopes of the lines are different, the lines intersect.
D	Correct!

PTS: 1

DIF: Average

REF: Page 408

OBJ: 6-4.4 Application

NAT: 12.5.4.g

TOP: 6-4 Solving Special Systems

KEY: solving | system of equations | rate

10. ANS: A

Substitute (8, 5) for (x, y) in $y > x + 7$.

$$y > x + 7$$

$$5 > (8) + 7$$

$$5 > 15, \text{ false}$$

(8, 5) is not a solution of $y > x + 7$.

	Feedback
A	Correct!
B	Substitute the values for (x, y) into the inequality to see if the ordered pair is a solution.

PTS: 1

DIF: Basic

REF: Page 414

OBJ: 6-5.1 Identifying Solutions of Inequalities

NAT: 12.5.4.a

TOP: 6-5 Solving Linear Inequalities

11. ANS: C

Step 1. Solve the inequality $-8x + 2y > -6$ for y.

$$y > 4x - 3$$

Step 2. Graph the boundary line $y = 4x - 3$. Use a dashed line for $>$.

Step 3. The inequality is $>$, so shade above the line.

	Feedback
A	The shaded region includes points that make the inequality true.
B	Check the boundary and the shading.
C	Correct!
D	The line is solid only when the operator is not $>$ or $<$.

PTS: 1

DIF: Average

REF: Page 415

OBJ: 6-5.2 Graphing Linear Inequalities in Two Variables

NAT: 12.5.4.a

TOP: 6-5 Solving Linear Inequalities

12. ANS: B

Let b be the number of pounds of bananas and a be the number of pounds of apples. The inequality is $2a + b \leq 18$. Solving for b gives $b \leq -2a + 18$. Graph the line $b = -2a + 18$.

The inequality is \leq , so shade below the line.

To find a point that satisfies the inequality, select a value for a . Then look on the graph for a point with that a -value that lies in the shaded region.

	Feedback
A	Tony must spend no more than the given amount of money. Check the inequality symbol.
B	Correct!
C	Shade on the correct side of the line.
D	Check the inequality symbol.

PTS: 1 DIF: Average REF: Page 416 OBJ: 6-5.3 Application

NAT: 12.5.4.a TOP: 6-5 Solving Linear Inequalities

KEY: coordinate plane | graph | linear inequality | solutions | multi-step

13. ANS: A

Use the graph to determine the slope and y-intercept, and then write an equation in the form $y = mx + b$. A graph shaded above the line means greater than and the graph shaded below the line means less than. Use \leq or \geq if the line is solid; use $<$ or $>$ if the line is dashed.

	Feedback
A	Correct!
B	Use "greater than or equal to" or "less than or equal to" for a solid line. Use "greater than" or "less than" for a dashed line.
C	Check the direction of the inequality symbol.
D	Use the graph to find the slope and y-intercept. Then write an equation for the boundary line in the form $y = mx + b$, where m is the slope and b is the y-intercept.

PTS: 1 DIF: Average REF: Page 417

OBJ: 6-5.4 Writing an Inequality from a Graph NAT: 12.5.3.d

TOP: 6-5 Solving Linear Inequalities KEY: graph | inequality | equation of a line

14. ANS: A

$$0 > 9 + 6x - 9y$$

$$0 > 3 + 2x - 3y$$

$$3y > 2x + 3$$

$$y > \frac{2}{3}x - \frac{3}{3}$$

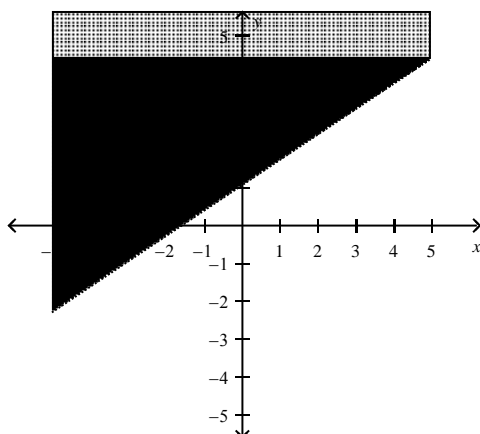
Divide the equation by a common factor, 3.

Add 3y to both sides.

Divide both sides by 3. Write the equation in slope-intercept form.

$$m = \frac{2}{3} \text{ and } b = -\frac{3}{3} = -1$$

Graph the boundary line. Use a solid line for \leq or \geq . Use a dashed line for $<$ or $>$. Shade the half-plane above the line if $y >$ or $y \geq$. Shade the half-plane below the line if $y <$ or $y \leq$.



	Feedback
A	Correct!
B	First, solve the inequality for y. Then, graph the boundary line and shade above or below the line.
C	When graphing inequalities, graph the boundary line, and then plug in (0,0) to see which side to shade.
D	When graphing inequalities, graph the boundary line, and then plug in (0,0) to see which side to shade.

PTS: 1 DIF: Advanced NAT: 12.5.4.g TOP: 6-5 Solving Linear Inequalities

15. ANS: A

Check by substituting the coordinates into both inequalities.

If (2, 7) satisfies both inequalities, then it is a solution of the system.

$$\begin{array}{rcl}
 y \geq 4x & & y < x + 2 \\
 7 \geq 4(2) & & 7 < 2 + 2 \\
 7 \geq 8 \text{ FALSE} & & 7 < 4 \text{ FALSE}
 \end{array}$$

	Feedback
A	Correct!
B	Check to see whether the ordered pair satisfies both inequalities. If it does, it is a solution.

PTS: 1 DIF: Basic REF: Page 421
 OBJ: 6-6.1 Identifying Solutions of Systems of Linear Inequalities
 NAT: 12.5.4.g TOP: 6-6 Solving Systems of Linear Inequalities